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ABSTRACT

To a large extent the Southwest can be described as a rural area. Under these circumstances, programs for public understanding of technology become, first of all, exercises in logistics. In 1982, New Mexico State University introduced a program to inform teachers about computer technology. This program takes microcomputers into rural classrooms (via a van that travels throughout the state) in order to introduce microcomputer technology and its potentials for educational programs to students and teachers. The program's organizational structures involves support from the International Space Center, the International Hall of Fame Foundation, New Mexico State University, and Texas Instruments Corporation. The van program cost for schools is $150 per day. Objectives of the project encompass: (1) computer awareness; (2) computer literacy; and (3) hands-on machine time. The van project has been effective in improving university relations with public elementary and secondary schools. (JMK)

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The Computer Experience Microvan Program: A Cooperative Endeavor to Improve University-Public School Relations Through Technology

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The Computer Experience Microvan Program: A Cooperative Endeavor to Improve University-Public School Relations Through Technology

To a large extent the Southwest can be described as a rural area. New Mexico, for example, would have approximately nine people per square mile if the state's population were evenly distributed. That, however, is not the case and almost half of the million plus population of this state is concentrated in the Albuquerque metropolitan area while the rest of the population is thinly spread over the rest of the state.

Under these circumstances, programs for public understanding of technology become, first of all, exercises in logistics. New Mexico State University (NMSU) has a statewide charter but has tended to concentrate its facilities in less populated southern New Mexico. One of the crucial problems of the university concerns its attempts to reach a widely dispersed population of current and potential students. One effort, an off-campus master's degree program offered through the College of Education was initiated five years ago in the four corners area of the state. This program was the beginning of increased activity on the part of NMSU to achieve visibility throughout the state.

In the spring of 1982, NMSU like many other institutions, faced the problems of declining enrollment along with the realization that better public relations were needed with elementary and secondary schools throughout the state. At the same time, attacks on education were being reported through the media forcing the university into a defensive position. Innovative and alternative ways of remedying the situation were sought by the administrative leaders at NMSU.

Although the impact of computer technology on the university started in 1980, no major decisions had been made about how the university would meet

these demands until spring 1982. At that time there was a sudden proliferation of college computer planning committees and the establishment of a University Computer Advisory Group. But one of the most important efforts of the university was its involvement with Texas Instruments, Incorporated and the International Space Center in the implementation of a computer experience microvan program. Briefly, this program takes microcomputers into rural classrooms throughout the state in order to introduce microcomputer technology and its potentials for educational programs to the students and teachers.

One exciting aspect of this program is the organizational structure and support from the Space Center, the International Space Hall of Fame Foundation, New Mexico State University, and Texas Instruments Corporation. The International Space Hall of Fame Foundation provides the van; the Space Center staff provide administrative coordination and support for scheduling and related areas; Texas Instruments Corporation supplies the microcomputers and software; and New Mexico State University provides the two instructors who travel with the van and, also, various support and maintenance functions.

Texas Instruments was originally approached for participation because of their development of an elementary curriculum for their LOGO software language. The TI LOGO Curriculum Guide is used for most of the learning experience and is based upon Jean Piaget's theory of intellectual development. The proximity of the Texas Instruments Education Office in Lubbock, Texas, also served to facilitate communication and cooperation in the early stages of the program. In addition to hardware and software support, Texas Instruments has provided extensive training for the staff involved.

Initial discussions regarding the implementation of the computer experience van were launched late in the spring of 1982. The enthusiastic

support of all parties made it possible to consider the program fully funded and ready to go by December of the same year. Initial scheduling of the van for the "road" in late January came about before formal announcements of the program had even been distributed. Articles in various papers during the holidays caught the attention of teachers and administrators from throughout the state. There was an early determination that the van program would not be "free" for schools. Rather, we decided that by requiring schools to contribute to the costs of the program there would also be a commitment to seeing that the program went well in their facilities. The cost to the school is quite minimal--per diem and travel for the van and two staff at $150 per day, and although this may have discouraged a few schools from participation, most institutions feel that it is a manageable sum. In fact, by early March, the van was essentially booked for the remainder of the school year. A glance at the pinpoints on the scheduling map is enough to convince all involved that there is a statewide computer education program underway in New Mexico.

The primary objectives of the van project encompass: 1) computer awareness, 2) computer literacy, and 3) hands-on machine time. These objectives are common for both public school students and teachers. Obviously, the specific objectives are designed and implemented to meet the levels and needs of each group. And since school districts also have their own objectives and needs defined in terms of utilization of the van and its staff, these are negotiated between the school's contact person and the van coordinator. Thus, the schedule and materials and activities are designed to meet the unique needs of each site to be visited.

Because of the distances between New Mexico towns, the van is on the road a great deal of time. Scheduling flexibility allows for travel time so the van generally arrives at the town the night before the scheduled visit.

Early each morning, the instructors drive the van to the specific school in order to allow sufficient time for the computers to be set up in the designated area. During the day students in the school classrooms are given instruction in computer awareness and literacy plus some simple programming using LOGO. After classes are dismissed for the day, teachers are involved in a period of instruction with a more detailed exploration of the microcomputer and a review of available software. The message that computers are not intended to replace teachers, but are tools to assist, support, and facilitate classroom learning is constant.

Many teachers are experiencing a high level of anxiety as the technological age rushes upon us. Not the least significant is actual fear of the machines themselves. It is often encouraging for them to know that the van's staff are professional educators, not computer scientists. The professionals are selected based upon their prior successful experiences with public school students and their credibility with public school teachers and administrators. They are then trained for the microcomputer program.

Formative evaluation has been implemented throughout the project. This has included: 1) formal evaluations by students, teachers, administrators and counselors; 3) anecdotal reports by the traveling staff; 4) logs maintained by the traveling staff; and 5) quantitative data collection and analysis. From the evaluation, it would seem that this cooperative project is making a unique educational contribution to students, teachers, counselors, and administrators throughout the state of New Mexico.

The anticipated plans for expanding the project for Fall 1983 are being implemented. A variety of different programs including LOGO II and Plato for elementary and secondary students and teachers are providing services to

all grade levels. In addition, a broader focus of the overall van project encompasses new provisions for extended math and science activities and a robotics emphasis with a graphics tablet and a small laser scanning system. Later, a large RV patterned after the bookmobile concept may be an option available along with the possibilities of increasing the number of vans and instructional staff.

The program serves multifaceted purposes for both the university and the schools of New Mexico. More specifically, the designing, planning and implementation of the Computer Experience Microvan Program has led to a significant improvement in our institution. As we noted in the opening paragraphs of this paper, one of the crucial problems of the university concerns its attempts to reach a widely dispersed population of potential and current students. The microcomputer van program is strengthening the university's position and efforts in this area, particularly in two contexts:

1) Potential students. The van is visiting school districts throughout the state. Since it is a colorfully painted, attractive vehicle, it is becoming well known as a New Mexico State University traveling program. Students are experiencing positive benefits as a result of the project. Teachers, administrators, counselors and parents have become involved with the program and can see the efforts being made on their behalf by the university. This would seem to have a significant benefit in terms of recruitment of potential students. In a time of declining enrollments, the improved public relations should have long-term positive effects for the university.

2) Current students. The off-campus master's degree program through the College of Education (COE) which was initiated five years ago has gradually expanded. However, because there has not been the equipment, including the hardware and software, there have been few, if any, course offerings in

practical computer experience and applications. Since the van can now bring the equipment to the field-based sites, course offerings can be considerably expanded.

One field-based graduate course for teachers and administrators was offered this spring through three successive week-ends. Another intensive graduate course was offered for two weeks duration at another site in June. We anticipate that additional course offerings will be added and that we now have both machine and staff capability to take these courses to any of our off-campus sites.

The improved public relations of the university with public elementary and secondary schools is already obvious. The original van staff consisted of a professor from the Department of Curriculum and Instruction and a third year Co-op student from the COE undergraduate teacher education program. The current instructors have similar backgrounds and training. The capability and quality of the university's van program has spread throughout the state by word of mouth, through conferences, media presentations and write-ups. There is constant interaction between the van staff and professional educators in the state. The program has expanded until it includes not only elementary and secondary educators, but post-secondary educators (other universities throughout the state) and State Department of Education personnel. The program has initiated an extremely positive climate for building further cooperative relationships.

The cooperative effort with Texas Instruments, Incorporated has led to a salient improvement for the College of Education. Accessibility to microcomputer hardware has been the almost exclusive domain of a limited number of graduate students. This has been due to the small number of microcomputers available. With the addition of fifteen TI microcomputers for the van project, and

cooperative scheduling between van project staff and COE professors, many of our undergraduates have had the opportunity to be exposed to computer awareness and literacy and hands-on machine time. COE course offerings for our undergraduates have been expanded this fall. Built into our new Teacher Education Program, which is being instituted this fall, is a course in Computer Literacy. We have only been able to implement this course as a result of machine availability.

With the impetus from these "seed-machines" the COE now has a microcomputer laboratory equipped with a variety of machines. Thus, our future teachers will be knowledgeable not only on appropriate programming skills, but also in the evaluation of hardware and software capabilities, and the curricular implementation of hardware and software in their future classrooms.

The cooperative effort of New Mexico State University with the International Space Hall of Fame has fostered a closer working relationship with the organization. This has led to further planning of cooperative endeavors, particularly in the area of science education, between the two organizations. Our undergraduate and graduate students will benefit from this arrangement both in university curricular offerings and in opportunities for expanded learning experiences.

The entire van program, from its early inception, has resulted in closer working relationships between university personnel and state and industrial organizations. These will be built upon and utilized to the benefit not only of the participating agencies but to the benefit of the public in general.

Perhaps one of the most significant improvements of the project in relation to our institution is the positive interaction and growing respect for and cooperation between upper level university administrators, staff and faculty from the Colleges of Education and Arts and Sciences, and faculty and staff from other academic areas. These interactions have increased throughout

the year and have established a firm positive foundation for future growth.

Attacks on education have been steadily reported through the state's media. The university, as indeed have most educational institutions, has been forced into a defensive position. It may be concluded that although as educational institutions we are beset with many problems, the Computer Experience Van Project, accompanied by all the apparently positive benefits derived from it by the university, and the inherent growth of the university attendant with the effort, has been a unique and positive contribution counteracting some of the negative aspects of education reported by the media.